

RAN-2403080104066001
M. Sc. (Sem. - IV) Examination September - 2025
Physics (Paper - PH-546) Skill based course : Remote Sensors
Time: 2 Hours]
[Total Marks: 30
સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Assume the data if required.
- (3) Figures to right hand side indicate marks of each question.
- (4) Attempt any two of each question

Seat No.:

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Student's Signature

- Q. 1. A. i.** Give the classification of remote sensors. What is spectral resolution?
Derive the expression of central wavelength and bandwidth. **(05)**
- ii.** What is the important criterion for the location of spectral bands? Write the applications of Thematic Mapper spectral bands in the optical infrared region. **(03)**
- B. i.** What is meant by radiometric resolution? Explain it briefly. **(03)**
- ii.** What are the factors responsible for the image of radiometric quality?
Define absolute and relative accuracy with respect to radiometric quality.
Explain how the radiometric errors are due to MTF. **(05)**
- C. i.** What do you mean by Temporal resolution. Explain it briefly. **(03)**
- ii.** What is spatial resolution? Explain how the two objects are resolved.
Explain it in detail. **(05)**
- Q. 2. A. i.** Explain following imaging mode with diagram **(04)**
1. Frame by frame
 2. Pixel by pixel
 3. Line by line
- ii.** What is exposure? Define it. Draw the schematic of a typical characteristic curve of a photographic film and explain it. Write the relation between $D_{\min}$, D_{base} and D_{fog} . **(03)**
- B. i.** Describe the design details and characteristic of the Large Format Camera and explain it. **(04)**
- ii.** Describe in detail the working of an opto-mechanical scanner. **(03)**
- C. i.** What is catadioptric? Write the name of reflective telescope system and explain them briefly. Also compare the size of different telescope. **(04)**
- ii.** Explain the following term with respect to electro optical detector. **(03)**
1. Specific detectivity
 2. NEP
 3. Time constant